

The Confluence

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Natural Resource Damage Program
and
Fish, Wildlife & Parks
Present
Stories of What is to Come at Milltown Dam



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"Place of the Big Bull Trout"

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Restoring rivers to “a naturally functioning, stable system” a challenging goal

By Doug Martin, Pat Saffel, Gary Decker, and Tom Parker

The State’s Restoration Plan for the Clark Fork and Blackfoot Rivers near Milltown Dam is founded on a common goal to, “restore the confluence of the Blackfoot and Clark Fork Rivers to a naturally functioning, stable system.” This broad goal has been more specifically defined by six goals developed by the State and the other Milltown Site resource Trustees. (October 2005, *Restoration Plan for the Clark Fork River and Blackfoot River Near Milltown Dam*)

The National Peer Review members who reviewed the restoration plan recommended that we develop goals and objectives that would be measurable. Therefore, the six goals are being restated as “Performance Criteria” that will allow us to measure whether we have achieved each goal and provide a way of assessing the success of the project. By providing “Performance Criteria”, the State can also better communicate with other professionals and the public about what is expected through restoration.

What might you expect to see in the future looking upstream from the confluence of the Clark Fork and Blackfoot rivers, five years, ten years, twenty years, 50 years, 100 years? Depending on when you are there and where you are looking, you will see many different things. The restored floodplain and channel will be growing and changing through time. Some changes may be obvious while other changes will only be able to be measured or observed by a trained eye.

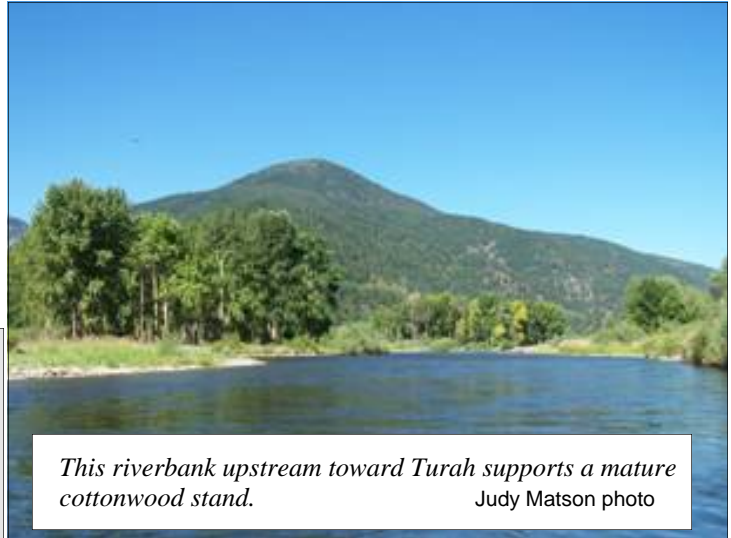
The Blackfoot floodplain

The Blackfoot River floodplain will see less change in channel location and shape because of the channel type and location. However, the restored floodplain will see changes. Where currently there is little floodplain, in the future there will be considerably more floodplain. Vegetation will be established and become part of the Blackfoot River. Starting with grasses and forbs, young willows, and other small woody vegetation, the floodplain will be very green. Because woody plants are important for bank stability, the river’s edge will have dense willows, alders, dogwood and cottonwood within the first three to five years. Over time, the broader Blackfoot River floodplain will be naturally seeded by over bank flows and wind. A channel and floodplain one sees upstream on the Blackfoot River near Marco Flats fishing access or Angevine may be a good reference for what this channel might look like in 50 years.

The Clark Fork floodplain

What will the Clark Fork floodplain look like in the future? One might look upstream toward Turah or even further upstream toward Clinton. These areas have mature cottonwood stands, mature conifer stands, newly developed point bars with young sandbar willows, abandoned river

channels full of wetland plant species, newly developed side channels, and many more types of plant communities. The State is not going to restore all these types of communities, but our plan is to re-establish the natural processes that will allow the river and floodplain to mature over time and support many different communities. During restoration construction, revegetation will focus on stream banks and on the most erodible floodplain areas, so some of



This riverbank upstream toward Turah supports a mature cottonwood stand.
Judy Matson photo

these areas will have large shrubs and dense wetland plants within the first ten years. Elsewhere during the first five to ten years one should expect to see bare sand, gravel and cobble mixed with plants such as grasses, forbs, and small woody species. From years 10 through 50, one may see larger willows and mature cottonwoods appear.

The State also needs to work with landowners along this stretch of the river. Two of the major landowners on the south side of the river use some of their property for agriculture. The State is working with these landowners to ensure the restoration of the river and floodplain will include their interests and needs. So the post restoration will include hayfields and pastures for cattle.

The Clark Fork River channel

What about the Clark Fork River channel? The plan is to have the river channel develop its own habitat. There will be some intentional help at the start with the use of structures. The State will be using the “Performance Criteria” to help determine the types of structures as well as habitat features such as pools, riffles, runs, and glides within the river. Ultimately, this will be determined by the natural river function over the years. The Clark Fork River will probably be constructed to look like a meandering channel with side channels, floodplain swales, wetlands, and higher terrace features. In the end, the “Performance Criteria” will help determine what the channel might look

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Restoration *(Continued from page 2)*

like in 25 years.

As our overarching goal states we are striving for a natural functioning channel. This type of channel will function like other healthy areas of the Clark Fork River. Natural processes such as the movement of the channel across the floodplain will take place over time. As a result, trees will fall into the river and make pools for fish that in turn feed osprey, bald eagles, and river otters; sediment will be added from the banks and develop point bars for young plants to colonize, killdeer to nest on, and spotted sandpipers to roam; and smaller side channels will develop and provide homes for a multitude of fish and wildlife such as young fish, frogs, and great blue heron.



A fallen tree lies along the Clark Fork river-bank.
(Judy Matson photo)

While the word “processes” suggests change in a river system, it is accompanied by a level of “stability” as well. This stability is necessary for trees and willows to take root and grow so they can provide their important habitats, and limit erosion to a level manageable by the river so pools form and side channels mature. This balance is extremely important and is currently the focus of much discussion and review. We are striving to do it right.

The challenge facing redevelopment

The fish, the wildlife, and the river will of course be there for people to enjoy. The State has set out to restore



Willows overhang a channel on the Clark Fork.
(Judy Matson photo)

the natural system and upon this is built the development of its use. This task has largely been taken up by the Milltown Redevelopment Group and the County. Along with the future landowners, their task will be to balance use



A great blue heron relies upon the river for its sustenance.

“The fish, the wildlife, and the river will, of course, be there for people to enjoy.”



(FWP photos)

with the natural environment – no easy task and a great responsibility.

About the authors:

Doug Martin, Environmental Specialist for the Natural Resource Damage Program.

Pat Saffel, Regional Fisheries Manager for Fish, Wildlife and Parks.

Gary Decker, WestWater Consulting, Inc.

Tom Parker, Geum Environmental Consulting, Inc.

Fish, Wildlife and Parks issued the following press release:

Sections of the Clark Fork, Blackfoot Rivers near Milltown Dam to close Sept. 1

Small sections of the Clark Fork and Blackfoot rivers near Milltown Dam will be closed to fishing and other recreation beginning Sept. 1 as part of the project to remove the dam.

The Montana Fish, Wildlife & Parks Commission approved the closure Aug. 3 to address public safety concerns related to changes in water level and debris exposure during the dam removal.

The Clark Fork will be closed from about one-half mile below Milltown Dam at the railroad bridge to three miles upstream from the bridge. On the Blackfoot, the closure will cover a stretch of about 1.5 miles from the river's confluence with the Clark Fork. The areas under the closure will be signed.

The closure boundaries will be reviewed periodically during the dam removal project to allow for recreation access while still providing adequate public safety.

For additional information on the closures, contact the Missoula FWP office at 542-5500.

“No greater opportunity for benefiting diverse wildlife populations is before us than at the delta in Milltown.”

Wildlife of the “Blackfoot Delta”

By Mike Thompson, Regional Wildlife Manager, Montana Fish, Wildlife & Parks

My first experience working with wildlife at Milltown was in the late 1980’s on Pinky Harris’s place over by Deer Creek. His lovely lawn, sloping ever so gently to the edge of the Clark Fork, provided succulent forage in spring and early summer for about 400 Canada geese (including their little yellow goslings). Mind you, this was before populations of Canada and white geese boomed across North America to the high levels we enjoy today.

Even at that time, Mr. Harris thought 400 geese were a great plenty on his lawn. But, we never did succeed in trapping and transplanting any of them back then, when it might have mattered, and now there’s no place where we need to put more geese.

It’s not surprising that the confluence of the Blackfoot and Clark Fork Rivers was a magnet for waterfowl before much of the rest of west-central Montana caught up. It’s the delta, where the Blackfoot slows, however briefly, to meet the braided and meandering Clark Fork, and deposition occurs. Islands and sandbars come and go. Cottonwoods grow and become wildlife hotels, and when allowed to multiply into a forest, they become virtual wildlife metropolises.

Great Blue Heron rookeries, and nests of Bald Eagle, Osprey, Wood Duck, Goldeneye, Pileated Woodpecker, Lewis’s Woodpecker, Belted Kingfisher, Great Horned Owl, and many other species belong in this unique place in the natural world, where the waters of two major rivers coax from the otherwise dry landscape an oasis of large tree cavities, big broken tops, broad limbs and leafy canopies, downfall, undercut banks, root wads, shallow backwaters, green herbs and berries.

It’s no wonder that black bear, mountain lion, coyote, flying squirrel and perhaps even a few elk will seek shelter and security along with the mink, muskrat, beaver, otter, and porcupine that work the trees and soil like a potter works the clay.

These are not only the idle musings of someone with an active imagination. You can see what I’m talking about at Kelly Island Fishing Access Site, where the Bitterroot and Clark Fork converge. Or at Council Grove State Park,

where the Clark Fork braids into sloughs and around islands.

Or near Milltown today, where large stands of cottonwoods along the Clark Fork contribute to the greatest diversity of wildlife for miles around.

And, today we look forward to a unique opportunity for expanding and enhancing this rare and confined wildlife community. It follows indeed that the greatest benefits to wildlife come from preserving and enhancing its most productive and most limiting habitats. And, no greater opportunity for benefiting diverse wildlife populations is before us than at the delta in Milltown.

For this wildlife community to flourish it needs natural ingredients, room on the landscape for natural processes to work, nesting areas and sanctuary numbering in the tens and hundreds of acres across the landscape, and a little tender loving care.



Belted kingfisher
(Chuck Carlson photo)



Muskrat

(FWP photo)

The natural ingredients at Milltown are exceptional. The opportunity to allow for natural flooding that is required to regenerate cottonwoods and feed the braided streams and backwaters so productive of wildlife is a practical reality, with careful

planning. There is potentially enough room in the right places along the river to dedicate a good share of it for wildlife security.

Perhaps the biggest challenge will be to restrain ourselves from overbuilding the paradise we have the chance to create. We can love it to death. That’s why our loving care must be applied with tenderness—with carefully managed access for the public to appreciate and enjoy that which we hope to enable.

For if the removal of Milltown Dam is about anything at all, it is about making the choice to let nature take its course.



Black bear

(FWP photo)

“... it is fortunate that fish still attempt to use the river as though it were still connected....Unfortunately, once their migration is cut off, the fish do not spawn at all.”

Removal of Milltown Dam will restore the potential for native fishes to reestablish migratory traits

By David Schmetterling

David Schmetterling is a fisheries research biologist in Missoula, and, since 1998, his primary focus has been to determine the effects of Milltown Dam on fishes and ways to mitigate for those impacts.

Milltown Dam has divided the Clark Fork watershed for the last century. It has separated important tributaries from the Clark Fork River like the Blackfoot River, Rock Creek and many others. In doing so, the dam disrupted the ability of fish to migrate and prosper. Historically, fish in the Clark Fork watershed used large, connected habitats spanning hundreds of miles to express different stages of their life histories.

Long ago, fish evolved to take advantage of the varied and wonderful natural resources in western Montana. For example, fish could use headwater streams of the Blackfoot River to spawn and for the young to rear, and later they could seek out the more productive waters of the Clark Fork to mature, grow and spend the winters. Later, they would return to the areas where they spawned and reared to spawn again, and provide for the next generation. By using such varied habitats fish were able to prosper and take advantage of all the resources our landscape offers.

The dam stopped that—at least temporarily. Milltown Dam, in a matter of years, drastically changed the landscape for fish. The dam has not allowed upstream fish passage, has limited downstream fish movements, and the reservoir has fostered a population of exotic northern pike that consume native trout. Also, toxic sediments that have accumulated in the reservoir contribute to both chronic and acute health problems for fish. All these changes have conspired against fish but none have suffered more than the bull trout.

Native fishes like westslope cutthroat trout and bull



Jim McFee and Ryen Anderson hold an adult bull trout that was captured in the fish trap at Milltown Dam while migrating upstream. This bull trout was implanted with a radio transmitter and released upstream of the dam. After it was transported above Milltown Dam this bull trout continued upstream over 70 miles to spawn. (FWP photo)

trout have been especially affected by the dam. Both fishes rely on migration to thrive in our harsh and ever changing environment by taking advantage of the landscape and the seasonal and geographic differences. Bull trout, once abundant in the area, are now only found in a fraction of their former range, and even where they are found their abundance is usually remarkably low.

Recent studies show the dam's continued effect on an



18 pound Bull trout implanted with a radio transmitter in spawning stream about 80 miles upstream of Milltown Dam, after capture at the dam and transport upstream. (FWP photo)

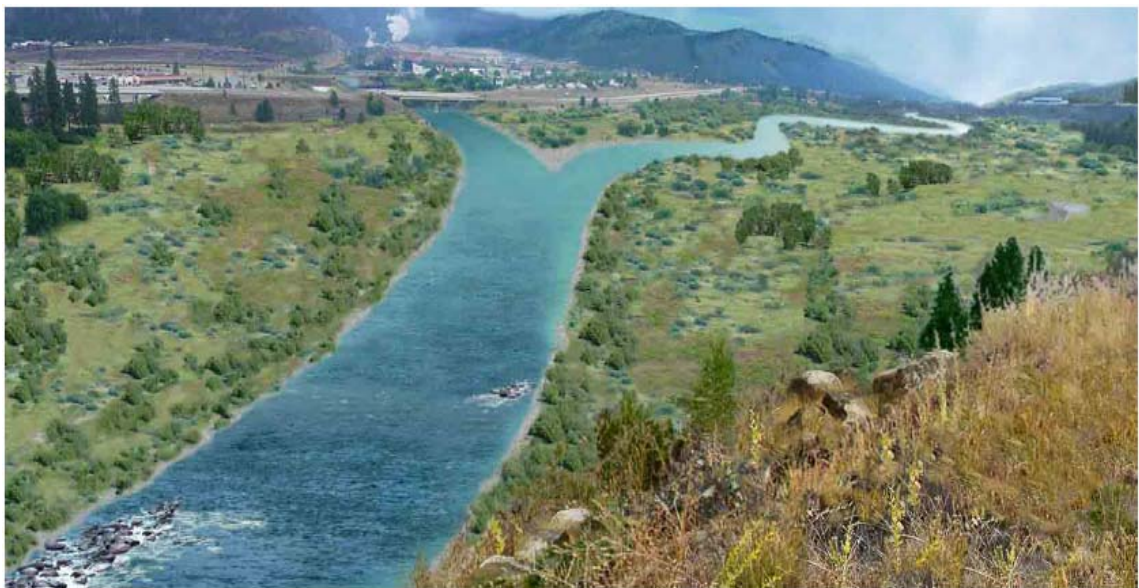
enormous geographic scale. Ironically, it is fortunate that fish still attempt to use the river as though it were still connected. Some fish that spawn in tributaries to the Blackfoot river or Rock Creek, still seek the productive Clark Fork River to mature. However, this is now a one way trip. We have documented tens of thousands of fish trying to migrate upstream past Milltown Dam each year. Unfortunately, once their migration is cut off, the fish do not spawn at all. The reason this futile effort to migrate and return to the areas they reared is important and good news for fish is that since they try each year to migrate past the dam, there is probably still the potential to reestablish migratory traits and recover and enhance local populations.

Milltown Dam will be removed in the next few years and the watershed will once again regain connectivity. Biotic changes from dam removal will range from drastic local changes in species composition, fish densities, and unimpeded fish passage. However, on most scales, the changes will be subtle and offer populations more resilience and better expression of life history tactics. Hopefully the removal of Milltown dam will begin to reverse the decline of fragmented populations of fishes like the bull trout.



Site today

Site after restoration



Artist's Rendition of post-remedy confluence, looking upstream from the bluff above Milltown Dam.

Note: The conceptual plan may change after the public comment period or during the remedial design process.